

WHAT IS CLAIMED IS:

1. An air passage switching device comprising:

a case for defining an air passage through which air flows, the case having a first opening portion and a plurality of second opening portions through which air in the air passage flows to an outside of the case;

a first door disposed in the case for opening and closing the first opening portion and a communication path that is provided within the case upstream of the second opening portions, wherein the first door is a rotary door including a rotation shaft, an outer peripheral door surface separated from a center axial line of the rotation shaft to a radial outside by a predetermined distance and two side plates connected to the rotation shaft and end portions of the outer peripheral surface in an axial direction of the rotation shaft;

a second door disposed downstream of the first door and the communication path, for opening and closing the second opening portions, the second door being operatively linked with the first door; and

an air distributing guide member provided in the second door to be moved integrally with the second door, wherein:

the rotary door is disposed to be rotatable between a first position where the first opening portion is closed by the rotary door, and a second position where the communication path is closed by the outer peripheral door surface of the rotary door;

when the rotary door is moved to a predetermined position between the first position and the second position, both of the first opening portion and the communication path are opened, and the second door opens at least one of the second opening portions; and

the air distributing guide member is positioned on the second door, opposite to the outer peripheral door surface of the rotary door, to be separated from the outer peripheral door surface by a predetermined distance (L1) to a radial outside, when the rotary door is moved to the predetermined position.

2. The air passage switching device according to claim 1, wherein the air distributing guide member has a flat surface.

3. The air passage switching device according to claim 1, wherein the air distributing guide member has a circular arc shape along a rotation locus of the outer peripheral door surface.

4. The air passage switching device according to claim 1, wherein:

the second opening portions include a door side opening portion arranged at a side close to the rotary door, and an anti-door side opening portion arranged at a side far away from the rotary door than the door side opening portion;

when the rotary door is moved to the predetermined

position, the second door closes the door side opening portion and opens the anti-door side opening portion, and the air distributing guide member is positioned opposite to the outer peripheral door surface of the rotary door to be separated from the outer peripheral door surface by the predetermined distance; and

when the second door is moved to a position where the door side opening portion is opened and the anti-door side opening portion is closed, the air distributing guide member is moved at a position offset from an air flow toward the door side opening portion.

5. The air passage switching device according to claim 1, wherein

the second door is a rotary door including a rotation shaft, an outer peripheral door surface separated from a center axial line of the rotation shaft to a radial outside by a predetermined distance and two side plates connected to the rotation shaft and end portions of the outer peripheral surface in an axial direction of the rotation shaft.

6. The air passage switching device according to claim 5, wherein the air distributing guide member is a beam member that extends in the axial direction to be connected to the two side plates.

7. The air passage switching device according to claim 1,

wherein the second door is a plate door having a rotation shaft and a plate member rotatable around the rotation shaft.

8. An air conditioner for a vehicle having a passenger compartment, comprising

a case for defining an air passage through which air flows, the case having a first opening portion and a plurality of second opening portions through which air in the air passage flows into different portions in the passenger compartment;

a heat exchanger disposed upstream of the first opening portion and the second opening portion in the case for performing a heat exchange with air in the air passage;

a first door disposed in the case for opening and closing the first opening portion and a communication path that is provided within the case upstream of the second opening portions, wherein the first door is a rotary door including a rotation shaft, an outer peripheral door surface separated from a center axial line of the rotation shaft to a radial outside by a predetermined distance and two side plates connected to the rotation shaft and end portion of the outer peripheral surface in an axial direction of the rotation shaft;

a second door disposed downstream of the first door and the communication path, for opening and closing the second opening portions, the second door being operatively linked with the first door; and

an air distributing guide member provided in the second door to be moved integrally with the second door, wherein:

the rotary door is disposed to be rotatable between a first position where the first opening portion is closed by the rotary door, and a second position where the communication path is closed by the outer peripheral door surface of the rotary door;

when the rotary door is moved to a predetermined position between the first position and the second position, both of the first opening portion and the communication path are opened, and the second door opens at least one of the second opening portions; and

the air distributing guide member is positioned on the second door, opposite to the outer peripheral door surface of the rotary door, to be separated from the outer peripheral door surface by a predetermined distance to a radial outside, when the rotary door is moved to the predetermined position.

9. The air conditioner according to claim 8, wherein:

the first opening portion is a foot opening portion for blowing air toward a lower side in the passenger compartment;

the second opening portions include a defroster opening portion for blowing air toward an inner surface of a front windshield of the vehicle, and a face opening portion for blowing air toward an upper side in the passenger compartment; and

when the rotary door is moved to the predetermined

position for opening the foot opening portion and opening the communication path by a predetermined opening degree, the second door closes the face opening portion and opens the defroster opening portion.

10. The air conditioner according to claim 8, wherein the air distributing guide member has a flat surface.

11. The air conditioner according to claim 8, wherein the air distributing guide member has a circular arc shape along a rotation locus of the outer peripheral door surface.

12. The air conditioner according to claim 8, wherein:
the second opening portions include a door side opening portion arranged at a side close to the rotary door, and an anti-door side opening portion arranged at a side far away from the rotary door than the door side opening portion;

when the rotary door is moved to the predetermined position, the second door closes the door side opening portion and opens the anti-door side opening portion, and the air distributing guide member is positioned opposite to the outer peripheral door surface of the rotary door to be separated from the outer peripheral door surface by the predetermined distance; and

when the second door is moved to a position where the door side opening portion is opened and the anti-door side opening portion is closed, the air distributing guide member

is moved at a position offset from an air flow toward the door side opening portion.

13. The air conditioner according to claim 8, wherein the second door is a rotary door including a rotation shaft, an outer peripheral door surface separated from a center axial line of the rotation shaft to a radial outside by a predetermined distance and two side plates connected to the rotation shaft and end portions of the outer peripheral surface in an axial direction of the rotation shaft.

14. The air conditioner according to claim 13, wherein the air distributing guide member is a beam member that extends in the axial direction to be connected to the two side plates.

15. The air conditioner according to claim 8, wherein the second door is a plate door having a rotation shaft and a plate member rotatable around the rotation shaft.